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LETTER

Incorporation of sodium into the chlorite structure: the crystal structure of glagolevite, $Na(Mg,Al)_6[Si_3AlO_{10}](OH,O)_8$

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ABSTRACT

The crystal structure of glagolevite, $Na(Mg,Al)_6[Si_3AlO_{10}](OH,O)_8$, a new mineral from the Kovdor alkaline massif, Kola peninsula, Russia, has been solved and refined to $R_1 = 0.117$, calculated from 1503 unique observed reflections ($F_o \geq 4\sigma F_o$), and to $R_1 = 0.118$ for all 1550 unique reflections. The specimen contained several polytypes; the crystal studied yielded triclinic space group $C1$, a = 5.3580(11), b = 9.2810(19), c = 14.574(3) Å, α = 90.00(3), β = 97.08(3), γ = 90.00(3)°, V = 719.2(3) Å^3. Glagolevite is the first mineral of the chlorite group that contains Na atoms located between the 2:1 layers and the interlayer octahedral sheets. The Na atoms are in sevenfold coordination. The $Na(O,OH)_7$ polyhedron is a trigonal prism with one of the triangular bases extended to a square. The tetrahedral sheets show disorder owing to polytype intergrowths. Tetrahedral site occupancies correlate with the occupancies of the Na sites. The polytypic composition of the crystal studied is estimated at 57% II*b*-6, 31% II*b*-2, and 12% II*b*-4.